

Claims

1. An electrostatic chucking system comprising:
an electrostatic chuck having an electrode for chucking a
semiconductor substrate;
a power supply section for applying a voltage to said electrode; and
a voltage control section for controlling the applied voltage,
wherein said voltage control section varies and controls the applied
voltage stepwise.

2. The electrostatic chucking system according to claim 1,
further comprising a temperature sensor for detecting the temperature
of the semiconductor substrate held by said electrostatic chuck,
wherein a signal output from said temperature sensor is input to said
voltage control section to thereby control the applied voltage.

3. The electrostatic chucking system according to claim 1,
further comprising a warpage sensor for detecting the amount of
warpage arising in the semiconductor substrate held by said
electrostatic chuck, wherein a signal output from said warpage sensor
is input to said voltage control section to thereby control the
applied voltage.

4. The electrostatic chucking system according to claim 1,
further comprising a distance sensor for detecting the distance
between said electrostatic chuck and the semiconductor substrate held
by said electrostatic chuck, wherein a signal output from the distance
sensor is input to said voltage control section to thereby control
the applied voltage.

5. The electrostatic chucking system according to claim 1,
wherein the control of variation in the applied voltage involves

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either increase or decrease in voltage.

6. The electrostatic chucking system according to claim 1, wherein the applied voltage is controlled such that a rate at which the temperature change of a semiconductor substrate falls within the range of 10°C/sec. to 150°C/sec.

7. A method of manufacturing a semiconductor device comprising a step of treating a semiconductor wafer through use of the electrostatic chucking system according to claim 1.

8. An apparatus for manufacturing a semiconductor device, said apparatus comprising the electrostatic chucking system according to claim 1.

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